Water Quality of Small Streams in the Coastal Region of New Hampshire

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- Objectives
- Approach
- Preliminary results
- Products
- Summary

Background

- Coastal region of New Hampshire experiencing growth and development
- Need local data to make decisions related to state planning
- NH Coastal Program using water-quality as an environmental indicator
- Cooperative NHCP/USGS project has been operating for three years.

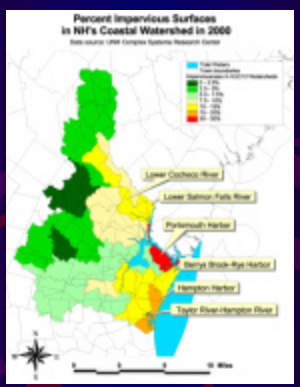
Objectives

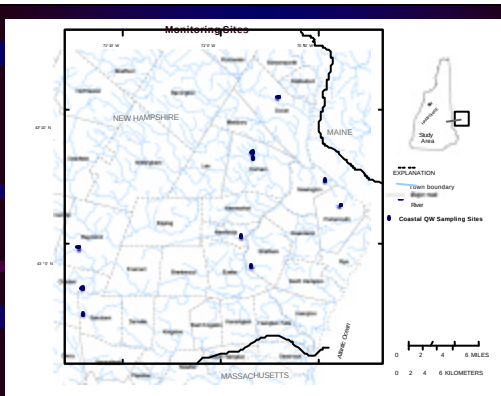
Overall:

- Assess how water-quality of small streams in the coastal region varies as a result of impervious surface

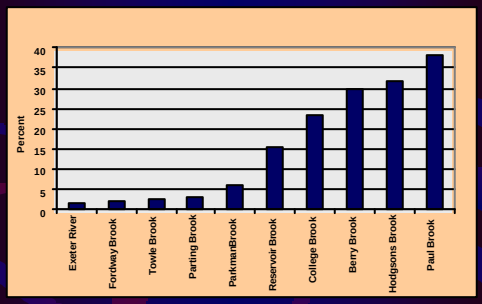
Specific:

- Design a water-quality sampling program
- Establish baseline water-quality conditions
- Provide an assessment of water-quality in relation to different levels of impervious surfaces and other indicators
- Communicate results to local decision makers





Impervious Surface



Data Source: UNH Complex Systems Research Center

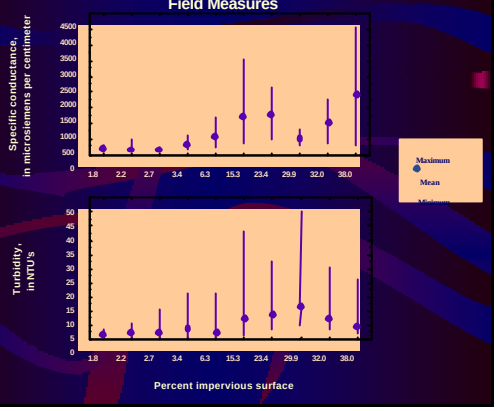
Approach

- Water quality- nitrogen, phosphorus, E. coli, aquatic insects, pH, specific conductance, dissolved oxygen, turbidity
- Hydrologic-instantaneous flow measurements
- Basin characteristics-impervious surface, land use, population, zoning

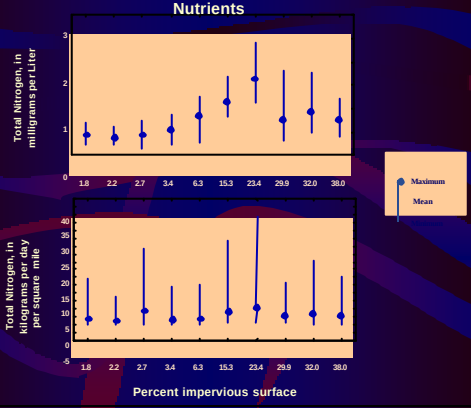
Preliminary Results

- Field measurements
- Nutrients and bacteria
- Aquatic Insects

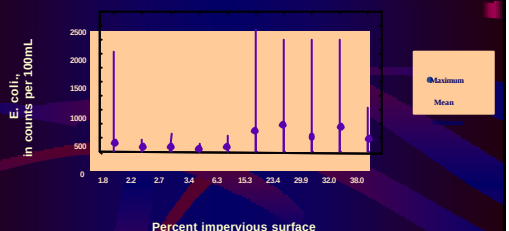
Field Measures



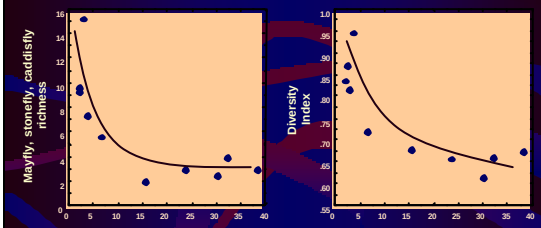
Nutrients



Bacteria

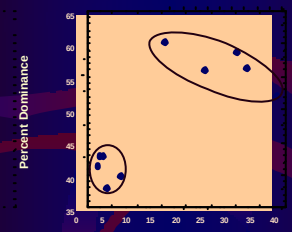


Aquatic Insects



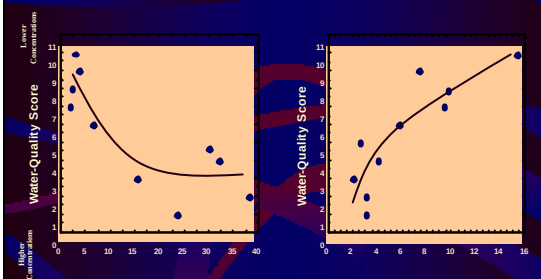
Percent impervious surface

Aquatic Insects



Percent impervious surface

Water Quality



Percent Impervious Surface

Mayfly, stonefly, caddisfly richness

Preliminary Products

- Local Data
- Outreach
- Draft Technical Report

Summary

- Chemical constituents increase with increasing levels of impervious surfaces within a watershed
- Aquatic insect communities are degraded at sites with higher levels of impervious surfaces
- Demonstrated a holistic approach using chemical and biological indicators
- Generating local data for use in decision making related to land-use planning and water resources

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